

Amendments to the Claims

This Listing of Claims will replace all prior Listings, and versions, of claims in the present application.

1. (Cancelled)

2. (Currently Amended) An electromechanical lock cylinder, comprising:
an outer shell having a bore formed therein and a cavity extending from the bore
into the shell;

a barrel disposed within the bore in the shell and being rotatable relative thereto;
a side bar cooperating between the shell and the barrel for selectively permitting
and blocking rotation of the barrel with respect to the shell, the side bar having a first
portion engaging the barrel and a second portion removably received in the cavity in the
shell, the side bar being movable relative to the barrel and the shell;

a blocking mechanism positionable in a blocking position relative to the side bar,
which position blocks motion of the side bar with respect to the shell, and thereby
prevents rotation of said barrel, and also positionable in an unblocking position relative to
the side bar, which permits the side bar to be moved relative to the cavity in the shell to
allow the barrel to be rotated with respect to the shell;

an electrically activated drive mechanism cooperating with the blocking
mechanism to selectively move the blocking mechanism from the blocking position to the
unblocking position in which the side bar moves out of the cavity upon rotation of the
barrel; and

control means for activating the electrically activated drive mechanism in
response to an authorized attempt to operate the lock cylinder.

A lock cylinder according to claim 1, wherein said blocking mechanism comprises a
slider bar movable relative to the side bar, wherein in said unblocking position said slider
bar is positioned adjacent to a recess, located in said side bar for receiving said slider bar,
upon rotation of said barrel.

3. (Cancelled)

4. (Cancelled)

5. (Original) A lock cylinder according to claim 2, wherein said electrically activated drive mechanism comprises a shape memory alloy actuator for moving said slider bar to said unblocking position upon activation by passing electric current through said actuator.

6. (Original) A lock cylinder according to claim 5, wherein said electrically activated drive mechanism further comprises a rocker attached to said shape memory alloy actuator and a pusher coupled between said rocker and said slider bar.

7. (Cancelled)

8. (Currently Amended) A lock cylinder according to claim 75, wherein said electrically activated drive mechanism further comprises a spring applying a force to said slider bar for biasing said slider bar in said blocking position when said shape memory alloy actuator is not activated.

9. (Cancelled)

10. (Currently Amended) A lock cylinder according to claim 95, wherein said shape memory alloy actuator is in the form of a wire.

11. (Original) A lock cylinder according to claim 5, wherein said shape memory alloy actuator is made of nitinol.

12. (Cancelled)

13. (Previously Presented) An electromechanical lock cylinder, comprising:

an outer shell having a bore formed therein and a cavity extending from the bore into the shell;

a barrel disposed within the bore in the shell and being rotatable relative thereto;

a blocking mechanism for normally blocking rotation of said barrel and being movable to an unblocking position to permit rotation of said barrel;

means cooperating with the blocking mechanism for selectively moving the blocking mechanism from the blocking position to the unblocking position upon occurrence of a predetermined condition, said moving means comprising a shape memory alloy actuator activated by passing electrical current therethrough; and

a side bar cooperating between the shell and the barrel for selectively permitting and blocking rotation of the barrel with respect to the shell, the side bar having a first portion engaging the barrel and a second portion removably received in the cavity in the shell, the side bar being movable relative to the barrel and the shell;

said blocking mechanism including a slider bar movable relative to the side bar, wherein in said unblocking position a recess in said slider bar is positioned adjacent to an extension in said side bar for receiving said extension upon rotation of said barrel.

14. (Cancelled)

15. (Previously Presented) An electromechanical lock cylinder, comprising:

an outer shell having a bore formed therein and a cavity extending from the bore into the shell;

a barrel disposed within the bore in the shell and being rotatable relative thereto;

a blocking mechanism for normally blocking rotation of said barrel and being movable to an unblocking position to permit rotation of said barrel;

means cooperating with the blocking mechanism for selectively moving the blocking mechanism from the blocking position to the unblocking position upon occurrence of a predetermined condition, said moving means comprising a shape memory alloy actuator activated by passing electrical current therethrough; and

a side bar cooperating between the shell and the barrel for selectively permitting

and blocking rotation of the barrel with respect to the shell, the side bar having a first portion engaging the barrel and a second portion removably received in the cavity in the shell, the side bar being movable relative to the barrel and the shell;

said blocking mechanism including a slider bar movable relative to the side bar, wherein said slider bar is positioned adjacent to a recess, located in said side bar for receiving said slider bar, upon rotation of said barrel.

16. (Original) A lock cylinder according to claim 15, wherein said blocking mechanism further comprises a rocker attached to said shape memory alloy actuator and a pusher coupled between said rocker and said slider bar.

17. (Original) A lock cylinder according to claim 13, further comprising control means, responsive to electrical data input from a key inserted into said lock cylinder, for causing said electrical current to be passed through said shape memory alloy actuator.

18. (Original) A lock cylinder according to claim 13, wherein said shape memory alloy actuator comprises a nitinol wire.

19. (Original) A lock cylinder according to claim 13, further comprising thermal interlock means for preventing operation of the lock cylinder upon external heating of said lock cylinder.

20. (Original) A lock cylinder according to claim 13, further comprising a plurality of tumbler pins cooperating between the shell and the barrel so as to block rotation of the barrel with respect to the shell in the absence of a properly bitted key, and to allow rotation of the barrel with respect to the shell upon insertion of a properly bitted key;

said blocking mechanism comprising a spinner which retractably engages at least one of said plurality of tumbler pins to prevent said at least one tumbler from moving to allow rotation of said barrel, said shape memory alloy actuator being activated to retract

said spinner from engagement with said at least one tumbler pin.

21. (Cancelled)

22. (Previously Presented) An electromechanical lock cylinder, comprising:
an outer shell having a bore formed therein and a cavity extending from the bore into the shell;
a barrel disposed within the bore in the shell and being rotatable relative thereto;
a blocking mechanism located in said barrel for normally blocking rotation of said barrel and being movable to an unblocking position to permit rotation of said barrel; and
electronic control means located at least in said lock cylinder cooperating with the blocking mechanism to selectively move the blocking mechanism from the blocking position to the unblocking position upon occurrence of a predetermined condition; and
a nitinol wire actuator cooperating with said electronic control means and said blocking mechanism for causing said blocking mechanism to move to said unblocking position upon passing of current through said wire, under control of said control means; and
a side bar cooperating between the shell and the barrel for selectively permitting and blocking rotation of the barrel with respect to the shell, the side bar having a first portion engaging the barrel and a second portion removably received in the cavity in the shell, the side bar being movable relative to the barrel and the shell;
said blocking mechanism including a slider bar movable relative to the side bar, wherein in said unblocking position a recess in said slider bar is positioned adjacent to an extension in said side bar for receiving said extension upon rotation of said barrel.

23. (Cancelled)

24. (Previously Presented) An electromechanical lock cylinder, comprising:
an outer shell having a bore formed therein and a cavity extending from the bore into the shell;

a barrel disposed within the bore in the shell and being rotatable relative thereto;
a blocking mechanism located in said barrel for normally blocking rotation of said barrel and being movable to an unblocking position to permit rotation of said barrel;

electronic control means located at least in said lock cylinder cooperating with the blocking mechanism to selectively move the blocking mechanism from the blocking position to the unblocking position upon occurrence of a predetermined condition;

a nitinol wire actuator cooperating with said electronic control means and said blocking mechanism for causing said blocking mechanism to move to said unblocking position upon passing of current through said wire, under control of said control means; and

a side bar cooperating between the shell and the barrel for selectively permitting and blocking rotation of the barrel with respect to the shell, the side bar having a first portion engaging the barrel and a second portion removably received in the cavity in the shell, the side bar being movable relative to the barrel and the shell;

said blocking mechanism including a slider bar movable relative to the side bar, wherein said slider bar is positioned adjacent to a recess, located in said side bar, for receiving said slider bar upon rotation of said barrel.

25. (Original) lock cylinder according to claim 24, wherein said blocking mechanism further comprises a rocker attached to said nitinol wire actuator and a pusher coupled between said rocker and said slider bar.

26. (Cancelled)